REMARKS

STATUS

Claims 1-18 remain active in this application. The Applicants appreciate the withdrawal of the previous grounds for rejection. The new grounds for rejection are also believed to be deficient, and reconsideration and allowance is requested as discussed below.

Claims 1, 3, 5-11, 13, 15, 16, and 18 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US 2,278,040). in view of Herron (US 6,241,471).

Claims 2, 4, 12, 14, and 17 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in view Herron and in further view of Ortolano (US 4,386,887).

APPLICANT'S ARGUMENTS

The instant invention prevents blade vibrations in a fluid-flow machine having a row or rows of moving blades.

With respect to the rejection of claims 1, 3, 5-11, 13, 15, 16, and 18 under 35 U.S.C. 103(a) as being unpatentable over Allen (US 2,278,040). in view of Herron (US 6,241,471):

Applicant traverses the Examiner's combination of Allen and Herron because the references teach away from their combination in direct contradiction to MPEP 2145 X,D, 2. (*References Teach Away from the Invention or Render Prior Art Unsatisfactory for Intended Purpose – and References Cannot Be Combined Where Reference Teaches Away from Their Combination*) which clearly states "It is improper to combine references where the references teach away from their combination." Allen teaches it's improvement is in welding the shroud members together while in contrast Herron teaches it's shroud members (shroud tips) provisionally lock together during dynamic loading but are intentionally not bonded or welded together.

Additionally, the combination of Allen and Herron conflicts with MPEP 2143.01 VI – (*The proposed modification cannot change the principle of operation of a reference*). Allen operates by welding together the adjacent shrouds and *forming a unitary shroud which has greatly reduced centrifugal bending moment stress*, whereas Herron appears to *use the*

centrifugally induced bending moment stress to cause vibration of it's saw-toothed regions (of the shroud tips) which through their vibration, inhibits resonance failures.

Specifically, Allen teaches welding together the shroud members 8 is an essential element of the invention. At great length Allen teaches and claims welding together the shroud members which are arranged at the tip of the blade. Allen expressly teaches "The edges of the shroud members 8 and the free ends of the lashing members 7 on adjacent blades are then welded together ... to produce a ductile and reliable bond between the bracing means on adjacent blades. " see page 3, column 1, lines 38-44. The shroud members and blades of Allen are brought together in their proper cooperative relationship to form a blade row such that "...bottom surfaces on adjacent members provide in effect a continuous fluid confining surface ..." See page 2, column 2, lines 33-74 and page 3, column 1, lines 20-52. Allen further teaches, in relevant part, "Instead of assembling the individual blade structures on a turbine spindle or rotor to form a circumferential blade row ...a plurality of these blade structures ... may be assembled in their proper cooperative relationship and the edges/or the free ends of the bracing means on adjacent blades welded together ... to form a segmental blade group adapted to be mounted as a unit on a turbine spindle or rotor ...", see page 3, column 1, lines 53-65.

In contrast, Herron teaches shroud members provisionally lock together during dynamic loading but are not bonded or welded together, see column 1, lines 52-60. Further, the shroud tip 16 of Herron "is added to provide lateral support to the connection also provides a vibrational constraint to the buckets, raising the buckets' natural frequencies and helping prevent resonance failures, see column 1, lines 35-39 (note this passage is cited by the Examiner as teaching the saw-toothed contact region).

The saw-toothed regions provide protection against resonance failures through their vibration during movement that would not be possible if the shroud tips were bonded or welded together as taught by Allen.

In summary, Herron teaches shroud tips which are intentionally not welded or bonded together – in contrast where Allen's shroud members are intentionally welded/bonded together. Also the shroud tips of Herron are purposefully developed to independently vibrate in response to the stresses caused by the centrifugal bending moment to protect against resonance failures – in contrast movement of the shroud members of Allen is minimized where the shroud members are welded together to greatly reduce stress caused by the centrifugal bending moment.

Further, Allen teaches "Damage to the turbine is, in many instances attributable to the failure of the bond between adjacent shroud members and to the action of centrifugal force in bending the then free ends of the shrouds radially outward thereby causing the soldered, brazed, or welded bond between the shroud member and the blade to fall or the free end of the shroud to contact a stationary part of the machine", see page 1, column 2, lines 23-31. Allen makes it clear, the free end of the shroud is a known source of damage to turbine and presents it's invention as an improvement that requires welding the free ends of the adjacent shrouds together.

Applicant reasserts the previous arguments of Applicant's communication dated April 2, 2008, as applicable.

With respect to the rejection of Claims 2, 4, 12, 14, and 17 under 35 U.S.C. 103(a) as being unpatentable over Allen in view Herron and in further view of Ortolano (US 4,386,887):

As explained above, Applicant traverses the combination of Allen and Herron. All arguments are applicable to these claims as they depend from claims that improperly combine Allen and Herron.

Conclusion

Reconsideration and allowance in light of the remarks herein is respectfully requested. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including the fees specified in 37 C.F.R. §§ 1.16 (c), 1.17(a)(1) and 1.20(d), or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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By: _____

John P. Musone
Registration No. 44,961
(407) 736-6449

Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, New Jersey 08830